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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,103	09/09/2003	Daikichi Fukushima	Q77131	3399

7590 02/12/2007

SUGHRUE MION PLLC
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Washington, DC 20037-3213

EXAMINER	
BUNNER, BRIDGET E	
ART UNIT	PAPER NUMBER
1647	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/657,103	FUKUSHIMA ET AL.	
	Examiner	Art Unit	
	Bridget E. Bunner	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,10 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,10 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/700,397.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/24/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *Appendices A and B*.

DETAILED ACTION

Status of Application, Amendments and/or Claims

The amendment of 27 November 2006 has been entered in full. Claims 1, 2, and 10 are amended. Claims 3-9 are cancelled. Claim 11 is added.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, and 10-11 are under consideration in the instant application.

Withdrawn Objections and/or Rejections

1. The objections to the specification at pg 4of the previous Office Action (07 June 2006) are *withdrawn* in view of the amended abstract and specification (27 November 2006).

2. The objections to claims 1, 2, and 10 at pg 4-5 of the previous Office Action (07 June 2006) are *withdrawn* in view of the amended claims (27 November 2006).

3. The rejections to claims 1, 2, and 10 under 35 U.S.C. 112, second paragraph, as set forth at pg 13-14 of the previous Office Action (07 June 2006) are *withdrawn in part* in view of the amended claims (27 November 2006). Please see section on 35 U.S.C. 112, second paragraph below.

4. The rejection of claims 1, 2, and 10 under 35 U.S.C. § 102(b) as set forth at pg 14-15 of the previous Office Action (07 June 2006) is *withdrawn* in view of the amended claims (27 November 2006).

5. The supplemental information disclosure statement filed on 24 October 2006 has been considered.

Claim Objections

6. Claim 2 is objected to because of the following informalities:

6a. Regarding claim 2, line 2, the word "in" should be deleted. It appears that "in" was not deleted in the amended claims submitted 27 November 2006.

Claim Rejections - 35 USC § 101 and 35 U.S.C. § 112, first paragraph

Utility

7. Claims 1, 2, 10, and 11 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible, specific and substantial asserted utility or a well established utility. Novel biological molecules lack well established utility and must undergo extensive experimentation. The basis for this rejection is set forth for claims 1, 2, and 10 at pg 5-8 of the previous Office Action (07 June 2006).

The claims are directed to an isolated polypeptide comprising the amino acid sequence of SEQ ID NO: 3 or a homologue having at least 95% amino acid sequence identity with the polypeptide comprising the amino acid sequence of SEQ ID NO: 3, wherein said homologue regulates spread of neural dendrites. The claims recite a composition containing the polypeptide in association with pharmaceutically acceptable diluent and/or carrier. The claims also recite a polypeptide comprising the amino acid sequence of SEQ ID NO: 4.

Applicant's arguments in the response submitted 27 November 2006 as they pertain to the rejections have been fully considered but are not deemed to be persuasive for the following reasons.

(i) At the top of page 7 of the Response of 27 November 2006, Applicant asserts that the OC001 polypeptide has a specific, substantial and credible utility that is based on the spread activity the polypeptide has on neural dendrites, as well as the neurite outgrowth activity of the polypeptide. Applicant argues that the specification at pg 28 discloses that the OC001 polypeptide is structurally similar to rat neurotrimin and human opioid-binding cell adhesion molecule (OBCAM). Applicant states that the OC001 polypeptide has now been confirmed to be human neurotrimin. Applicant indicates that neurotrimins comprise the IgLON family of neural cell adhesion molecules and share similar activities. Applicant argues that Gil et al. (J Neurosci 18(22): 9312-9325, 1998) discloses that members of the neurotrimin family have activity in the promotion of outgrowths of certain neurons, inhibition of outgrowths by other types of neurons, and regulation of the development of neuronal projections. Applicant adds that Wilson et al. (J Cell Sci 109: 3129-3138, 1996) describes that GP55-A, which is 73% similar to neurotrimin inhibits neurite outgrowth. Applicant concludes that in light of these points, it is clear that the skilled artisan would understand that the OC001 polypeptide is a member of the IgLON family and that the OC001 polypeptide would be expected to have activity in the regulation of neuron outgrowth.

Applicant's arguments have been fully considered but are not found to be persuasive. Specifically, the specification teaches that a search using BLASTX, BLASTP, and FASTA revealed a significant homology between clone OC001 and neurotrimin (Genbank Accession No. U16845) and OBCAM (Genbank Accession No. L34774) (page 28, first full paragraph). The specification also discloses that "[b]ased on these homologies, clone OC001 and nervous cell adhesion molecule family including neurotrimin and opioid-binding cell adhesion molecule were

expected to share at least some activity" (page 28, lines 22-25). It is noted that the specification does not indicate how similar the OC001 polypeptide is to neurotrimin and OBCAM. According to the sequence search processed by the PTO on 30 May 2006, the claimed polypeptide of SEQ ID NO: 3 is only 90.8% identical to the neurotrimin protein of Genbank Accession No. U16845 and 70.2% identical to the OBCAM protein of Genbank Accession No. L34774 (see sequence alignments attached to the instant Office Action as Appendix A). Furthermore, according to the sequence search processed by the PTO, the claimed polypeptide of SEQ ID NO: 4 is 98.4% identical to the neurotrimin protein of Genbank Accession No. U16845 and 75.8% identical to the OBCAM protein of Genbank Accession No. L34774 (see sequence alignments attached to the instant Office Action as Appendix B). However, as pointed in the previous Office Action of 07 June 2006, while it is known that many amino acid substitutions are generally possible in any given protein the positions within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of success are limited. Certain positions in the sequence are critical to the protein's structure/function relationship, e.g. such as various sites or regions directly involved in binding, activity and in providing the correct three-dimensional spatial orientation of binding and active sites. The assertion that the disclosed OC001 polypeptide has biological activities similar to known neurotrimin and OBCAM cannot be accepted in the absence of supporting evidence, because the relevant literature reports examples of polypeptide families wherein individual members have distinct, and sometimes even opposite, biological activities. For example, Tischer et al. (U.S. Patent 5,194,596) establishes that VEGF (a member of the PDGF, or platelet-derived growth factor, family) is mitogenic for vascular endothelial cells but not for vascular smooth muscle cells, which is opposite to the mitogenic activity of

naturally occurring PDGF which is mitogenic for vascular smooth muscle cells but not for vascular endothelial cells (column 2, line 46 to column 3; line 2). The differences between PDGF and VEGF are also seen *in vivo*, wherein endothelial-pericyte associations in the eye are disrupted by intraocular administration of PDGF but accelerated by intraocular administration of VEGF (Benjamin et al., 1998, Development 125:1591-1598; see Abstract and pp. 1594-1596). In the transforming growth factor (TGF) family, Vukicevic et al. (1996, PNAS USA 93:9021-9026) disclose that OP-1, a member of the TGF-β family of proteins, has the ability to induce metanephrogenesis, whereas closely related TGF-β family members BMP-2 and TGF-β1 had no effect on metanephrogenesis under identical conditions (p. 9023, paragraph bridging columns 1-2). See also Massague, who reviews other members of the TGF-β family (1987, Cell 49:437-8, esp. p. 438, column 1, second full paragraph to the end). Similarly, PTH and PTHrP are two structurally closely related proteins which can have opposite effects on bone resorption (Pilbeam et al., 1993, Bone 14:717-720; see p. 717, second paragraph of Introduction). Finally, Kopchick et al. (U.S. Patent 5,350,836) disclose several antagonists of vertebrate growth hormone that differ from naturally occurring growth hormone by a single amino acid (column 2, lines 37-48).

Additionally, the state of the art is such that IgLON family members (such as neurotrimin and OBCAM) are expressed on distinct populations of neurons and have opposing activities on different types of neurons. For example, Wilson et al. (cited by Applicant) teach that LAMP *stimulates* neuronal outgrowth of neurons that express LAMP, but neither stimulates nor inhibits the growth of LAMP negative neurons (page 3138, column 1). Wilson et al. also disclose that GP55 *inhibits* neurite outgrowth of DRG neurons and forebrain neurons (pg 3131, last paragraph in column 1). Gil et al. (cited by Applicant) teach that neurotrimin stimulates the outgrowth of

DRG neurons and inhibits the outgrowth of SRG neurons (page 9320, bottom of column 1; page 9322). Gil et al. conclude that studies suggest "...that the distinct expression of IgLON members promotes the development of system-specific projections by a combination of growth-promoting and growth-inhibiting activities. The precise signaling pathways involved and the functional consequences of interactions between different family members are important questions for future investigation" (bottom of pg 9323 through the top of pg 9324). Relevant post-filing date literature indicates that only three studies suggest that members of the IgLON family modulate neurite outgrowth (McNamee et al. J Neurochem 80: 941-948, 2002; at pg 947 reviewing Mann et al. 1998, Gil et al. 1998, and Marg et al. 1999). McNamee et al. point out that Hancox et al. 1997 report that chicken LAMP fails to produce any effect on the outgrowth of cerebellar granule cells (pg 947, col 2, 1st full paragraph). McNamee et al. also disclose that their current study failed to find conclusive evidence for a role of IgLON members in neurite outgrowth or axon guidance (abstract; pg 947, col 2, 1st full paragraph). In fact, McNamee et al. state suggest that "IgLONs may be more important for cell adhesion and cell-cell recognition than axon guidance" (pg 947, col 2, 1st full paragraph). Thus, regarding the instant application, one skilled in the art would not know the functional activity of the purported IgLON family member, OC001. For example, the skilled artisan would not know which neuron population OC001 exerts its activity on or even what the precise biological activity is (i.e., stimulation or inhibition of neurites, cell adhesion, or other).

It is also noted that at page 7 of the Response of 27 November 2006, Applicant asserts that the OC001 has now been confirmed to be human neurotrimin. However, the Examiner could find no evidence in the relevant literature supporting Applicant's statement. It must be

emphasized that arguments of counsel alone cannot take the place of evidence in the record once an examiner has advanced a reasonable basis for questioning the disclosure. See *In re Budnick*, 537 F.2d at 538, 190 USPQ at 424; *In re Schulze*, 346 F.2d 600, 145 USPQ 716 (CCPA 1965); *In re Cole*, 326 F.2d 769, 140 USPQ 230 (CCPA 1964). For example, in a case where the record consisted substantially of arguments and opinions of applicant's attorney, the court indicated that factual affidavits could have provided important evidence on the issue of enablement. See *In re Knowlton*, 500 F.2d at 572, 183 USPQ at 37; *In re Wiseman*, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979).

At pages 14-22, the specification discloses many diverse biological activities that the polypeptide may exhibit (such as, cytokine activity, cell proliferation/differentiation activity, immune stimulating/suppressing activity, hematopoiesis regulating activity, tissue generation/regeneration activity, among others). Within this list, the specification of the instant application teaches that "[t]he present polypeptide is also suspected to function to nervous system, so expected to have functions below....spread of neural dendrites..." (pg 22, lines 1-5). Thus, it is clear from the instant specification that the OC001 polypeptide described therein is what is termed an "orphan protein" in the art. This is a protein whose cDNA has been isolated because of its similarity to known proteins. There is little doubt that, after complete characterization, this DNA and protein, may be found to have a specific and substantial credible utility. This further characterization, however, is part of the act of invention and until it has been undertaken, Applicant's claimed invention is incomplete. The instant situation is directly analogous to that which was addressed in *Brenner v. Manson*, 148 U.S.P.Q. 689 (Sus. Ct, 1966), in which a novel compound which was structurally analogous to other compounds which were

known to possess anti-cancer activity was alleged to be potentially useful as an anti-tumor agent in the absence of evidence supporting this utility. The court expressed the opinion that all chemical compounds are "useful" to the chemical arts when this term is given its broadest interpretation. However, the court held that this broad interpretation was not the intended definition of "useful" as it appears in 35 U.S.C. §101, which requires that an invention must have either an immediately obvious or fully disclosed "real world" utility. The court held that:

> "The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility", "[u]nless and until a process is refined and developed to this point-where specific benefit exists in currently available form-there is insufficient justification for permitting an applicant to engross what may prove to be a broad field", and "a patent is not a hunting license", "[i]t is not a reward for the search, but compensation for its successful conclusion."

Enablement

8. Claims 1, 2, 10, and 11 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention. The basis for this rejection is set forth for claims 1, 2, and 10 at pg 8 of the previous Office Action (07 June 2006).

Applicant states that a specific, substantial, and credible utility has been described above. Specifically, since Applicant has not provided evidence to demonstrate that the OC001 polypeptide has a specific and substantial asserted utility or a well established utility, one skilled in the art would not know how to use the claimed invention. It is noted that the instant specification is required to teach one skilled in the art how to make and use the OC001 polypeptide.

9. However, even if the claimed invention is eventually deemed to have a credible, specific and substantial asserted utility or a well established utility, claims 1 and 10 would remain rejected under 35 U.S.C. § 112, first paragraph. The basis for this issue is set forth for claims 1, 2, and 10 at page 8-10 of the previous Office Action (07 June 2006).

Applicant's argument in the response submitted 27 November 2006 as they pertain to the rejection has been fully considered but are not deemed to be persuasive for the following reasons.

Applicant contends that included with the response is an amendment to the claims such that the recitation of fragments and homologues of the fragments have been canceled from the claims. Applicant indicates that the claims now recite a small, well-defined genus of polypeptides based on both structural and functional characteristics. Applicant states that the skilled artisan could readily envision the members of the claimed genus, and the claims have adequate written description support in the specification as filed.

Applicant's arguments have been fully considered but are not found to be persuasive. Specifically, as discussed in the previous Office Action, certain positions in the polypeptide sequence are critical to the protein's structure/function relationship, e.g., such as various sites or regions directly involved in binding, activity, and in providing the correct three-dimensional spatial orientation of binding and active sites. However, Applicant has provided little or no guidance beyond the mere presentation of sequence data to enable one of ordinary skill in the art to determine, without undue experimentation, the positions in the DNA and protein which are tolerant to change (e.g. such as by amino acid substitutions or deletions), and the nature and extent of changes that can be made in these positions. For example, as discussed above,

Kopchick et al. (U.S. Patent 5,350,836) disclose several antagonists of vertebrate growth hormone that differ from naturally occurring growth hormone by a *single* amino acid (column 2, lines 37-48). A large quantity of experimentation would be required by the skilled artisan to generate the infinite number of derivatives recited in the claims and screen the same for activity. The specification's general discussion of making and screening for variants constitutes an invitation to experiment by trial and error. No such variants were made or shown to have activity. Only the OC001 polypeptides of SEQ ID NO: 3 and 4 are disclosed. As was found in Ex parte Hitzeman, 9 USPQ2d 1821 (BPAI 1987), a single embodiment may provide broad enablement in cases involving predictable factors such as mechanical or electrical elements, but more will be required in cases that involve unpredictable factors such as most chemical reactions and physiological activity. See also In re Fisher, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970); Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 927 F.2d 1200, 1212, 18 USPQ2d 1016, 1026 (Fed. Cir.), cert. denied, 502 U.S. 856 (1991). Furthermore, recitation of the "wherein said homolog regulates spread of neural dendrites" in the claims is not adequate to describe the OC001 polypeptide or all possible variants that have at least 95% homology to the OC001 polypeptide of SEQ ID NO: 3, since there was no reduction to practice to support the amended claims.

Proper analysis of the Wands factors was provided in the previous Office Action. Due to the large quantity of experimentation necessary to generate the infinite number of derivatives recited in the claims and screen same for an activity, the lack of direction/guidance presented in the specification regarding which structural features are required in order to provide activity, the absence of working examples directed to same, the complex nature of the invention, the state of

the prior art which establishes the unpredictability of the effects of mutation on protein structure and function, and the breadth of the claims which fail to recite any functional limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

Written Description

10. Claims 1 and 10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The basis for this rejection is set forth for claims 1, 2, and 10 at pg 11-13 of the previous Office Action (07 June 2006).

Applicant's arguments (27 November 2006), as they pertain to the rejections have been fully considered but are not deemed to be persuasive for the following reasons.

At page 9 of the Response, Applicant argues that the claims have been amended to recite a small, well-defined genus of polypeptides based on both structural and functional characteristics. Applicant states that the claims have adequate written description support in the specification as filed.

Applicant's arguments have been fully considered but are not found to be persuasive. Specifically, Applicant has not described or shown possession of all polypeptides 95% homologous to SEQ ID NO: 3, that still retain the function of SEQ ID NO: 3. Nor has Applicant described a representative number of species that have 95% homology to SEQ ID NO: 3, such that it is clear that they were in possession of a genus of polypeptides functionally similar to SEQ

ID NO: 3. Regarding the instant claims, it is noted that the recitation "wherein said homolog regulates spread of neural dendrites" is not adequate to describe the OC001 polypeptide homologs that have 95% homology to the OC003 polypeptide of SEQ ID NO: 3, since there was no reduction to practice to support the amended claims. Applicant has not established that there is any conception of polypeptides in a manner commensurate in scope with the claims. All Applicant has presented is two polypeptides that are structurally homologous to neurotrimin and OBCAM, and the germ of an idea that there might be variants of the polypeptide of SEQ ID NO: 3 that would have biological functions similar to neurotrimin and OBCAM. There is no evidence of the actual conception of such variant polypeptides, nor is there any evidence of record that they exist. There is no disclosure in the instant specification that the described function is truly representative of all members of the claimed genus. In the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

Additionally, the broad brush discussion of making and screening for variants in the instant specification (for examples, pages 7, 13-14) does not constitute a disclosure of a representative number of members. No such variants were made or shown to have a physiological activity or involvement in the spread of neural dendrites. Only the OC001 polypeptides of SEQ ID NOs: 3 and 4 are disclosed. The specification's general discussion of making and screening for variants constitutes an invitation to experiment by trial and error. Such

does not constitute an adequate written description for the claimed variants. One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483.

New Matter

11. Claims 1, 2, and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

The claims are directed to an isolated polypeptide comprising the amino acid sequence of SEQ ID NO: 3 or a homologue having at least 95% amino acid sequence identity with the polypeptide comprising the amino acid sequence of SEQ ID NO: 3, wherein said homologue regulates spread of neural dendrites. The claims recite a composition containing the polypeptide in association with pharmaceutically acceptable diluent and/or carrier.

The specification as originally filed does not provide adequate written description for polypeptide homologues having at least 95% amino acid sequence identity with the polypeptide of SEQ ID NO: 3 wherein said homologue regulates spread of neural dendrites. The phrase "regulates spread of neural dendrites" is not expressly asserted, nor does it flow naturally from the specification.

At page 5 of the Response of 27 November 2006, Applicant indicates that support for the amendment to claim 1 (regulation of neural dendrite spread) can be found at page 22, first paragraph of the specification. However, the specification teaches "[t]he present polypeptide is

also suspected to function to nervous system, so expected to have functions below....spread of neural dendrites..." (pg 22, lines 1-5). The Examiner has interpreted the specification as indicating that the polypeptide has the function of spreading neural dendrites. The term "regulates" in the phrase "regulates spread of neural dendrites" is broadly interpreted by the Examiner as either (1) stimulates/increases spread of neural dendrites or (2) inhibits/decreases spread of neural dendrites. However, the inhibition/decrease of the spread of neural dendrites is not expressly asserted and does not flow naturally from the specification.

35 USC § 112, second paragraph

12. Claims 1, 2, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Claim 10 is indefinite because the elements recited in the claim do not constitute proper Markush groups. The claim is indefinite in the alternative use of "and/or" because it is not clear what controls which of these limitations. See MPEP § 2173.05(h). The basis for this rejection is set forth for claim 10 at pg 14 of the previous Office Action (07 June 2006).

At page 10 of the Response of 27 November 2006, Applicant indicates that included is an amendment to the claims, whereby this issue raised by the Examiner has been addressed, thus making the claims definite as written. Applicant's argument and claim amendments have been fully considered but are not found to be persuasive. Specifically, claim 10 has not been amended to address the alternative use of "and/or". (Please note that this issue could be overcome by amending the claim to recite, for example, "...a pharmaceutically acceptable diluent or carrier.".)

14. The term "regulates" in claims 1, 2, and 10 (especially claim 1, line 5) is a relative term which renders the claims indefinite. The term "regulates" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear what activity is encompassed by the term "regulates". For example, stimulates? Inhibits?

Conclusion

No claims are allowable.

Applicant's amendment necessitated the new ground(s) of objection/rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bridget E. Bunner whose telephone number is (571) 272-0881. The examiner can normally be reached on 8:30-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback can be reached on (571) 272-0961. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BEB
Art Unit 1647
07 February 2007

Bridget E. Bunner

BRIDGET BUNNER
PATENT EXAMINER

SEQ ID NO:3

Appendix A

<!--StartFragment-->ALIGNMENTS

RESULT 1
I56551
neurotrimin - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 09-Jul-2004
C;Accession: I56551
R;Struyk, A.F.; Canoll, P.D.; Wolfgang, M.J.; Rosen, C.L.; D'Eustachio, P.; Salzer, J.L.
J. Neurosci. 15, 2141-2156, 1995
A;Title: Cloning of neurotrimin defines a new subfamily of differentially expressed neural cell adhesion mc
A;Reference number: I56551; MUID:95198094; PMID:7891157
A;Accession: I56551
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-344 <RES>
A;Cross-references: UNIPROT:Q62718; UNIPARC:UPI00001305C7; EMBL:U16845; NID:g755184; PIDN:AAA67445.1; PID:g
C;Superfamily: carcinoembryonic antigen; carcinoembryonic antigen precursor amino-terminal homology; immunc

  Query Match 90.8%; Score 1639.5; DB 2; Length 344;
  Best Local Similarity 92.9%; Pred. No. 1.3e-113;
  Matches 312; Conservative 9; Mismatches 12; Indels 3; Gaps 1;

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Qy         12 ISWAIFTGLAALCLF---QGVPVRSGDATFPKAMDNVTVRQGESATLRCTIDNRVTRVAW 68
              : |     ::   ||    ||||||||||||||||||||||||||||||||||||||||
Db          9 LPWKCLVVVSLRLLFLVPTGVPVRSGDATFPKAMDNVTVRQGESATLRCTIDNRVTRVAW 68

Qy         69 LNRSTILYAGNDKWCLDPRVVLLSNTQTQYSIEIQNVDVYDEGPYTCSVQTDNHPKTSRV 128
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         69 LNRSTILYAGNDKWCLDPRVVLLSNTQTQYSIEIQNVDVYDEGPYTCSVQTDNHPKTSRV 128

Qy        129 HLIVQVSPKIVEISSDISINEGNNISLTCIATGRPEPTVTWRHISPKAVGFVSEDEYLEI 188
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        129 HLIVQVSPKIVEISSDISINEGNNISLTCIATGRPEPTVTWRHISPKAVGFVSEDEYLEI 188

Qy        189 QGITREQSGDYECSASNDVAAPVVRRVKVTVNYPPYISEAKGTGVPVGQKGTLQCEASAV 248
              |||||||||:|||||||||||||||| ||||||||||||||||||||||||||||||||
Db        189 QGITREQSGEYECSASNDVAAPVVRRVNVTVNYPPYISEAKGTGVPVGQKGTLQCEASAV 248

Qy        249 PSAEFQWYKDDKRLIEGKKGVKVENRPFLSKLIFFNVSEHDYGNYTCVASNKLGHTNASI 308
              |||||||:||||||:|||||||||||||||:| ||||||||||||||||||||||||||
Db        249 PSAEFQWFKDDKRLVEGKKGVKVENRPFLSRLTFFNVSEHDYGNYTCVASNKLGHTNASI 308

Qy        309 MLFGPGAVSEVSNGTSRRAGCVWLLPLLVLHLLLKF 344
              ||||||||||:|||||||||:|||||||||||||||
Db        309 MLFGPGAVSEVNNGTSRRAGCIWLLPLLVLHLLLKF 344
```

RESULT 2
JC1238
opioid-binding protein (clone DUZ1) - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 09-Jul-2004
C;Accession: JC1238
R;Lippman, D.A.; Lee, N.M.; Loh, H.H.
Gene 117, 249-254, 1992
A;Title: Opioid-binding cell adhesion molecule (OBCAM)-related clones from a rat brain cDNA library.
A;Reference number: JC1238; MUID:92347701; PMID:1339369
A;Accession: JC1238
A;Molecule type: mRNA
A;Residues: 1-338 <LIP>
A;Cross-references: UNIPROT:P32736; UNIPARC:UPI000002B020; GB:M88709; NID:g203245; PIDN:AAA40858.1; PID:g2C
A;Experimental source: brain
C;Genetics:
A;Gene: OBCAM
C;Superfamily: carcinoembryonic antigen; carcinoembryonic antigen precursor amino-terminal homology; immunc

  Query Match 71.2%; Score 1285.5; DB 2; Length 338;
  Best Local Similarity 71.6%; Pred. No. 1.7e-87;
  Matches 242; Conservative 35; Mismatches 60; Indels 1; Gaps 1;

```
Qy          8 MHNSISWAIFTGLAALCLFQGVPVRSGDATFPKAMDNVTVRQGESATLRCTIDNRVTRVA 67
              |::   | :|:   ||    ||||||||||||||||||||||||||||||:||||||
Db          1 MYHPAYWIVFSATTALLFIPGVPVRSGDATFPKAMDNVTVRQGESATLRCTIDDRVTRVA 60
```

Appendix A (cont.)

```
Qy         68 WLNRSTILYAGNDKWCLDPRVVLLSNTQTQYSIEIQNVDVYDEGPYTCSVQTDNHPKTSR 127
              |||||||||||||||| :||||::| || ||||| |||||||||||||||||||||||||
Db         61 WLNRSTILYAGNDKWSIDPRVIILVNTPTQYSIMIQNVDVYDEGPYTCSVQTDNHPKTSR 120

Qy        128 VHLIVQVSPKIVEISSDISINEGNNISLTCIATGRPEPTVTWRHISPK-AVGFVSEDEYL 186
              ||||||| |:|: |||||::||.::::| |:| |||||||||||:| |   |||||||||
Db        121 VHLIVQVPPQIMNISSDITVNEISSVTLLCLAIGRPEPTVTWRHLSVKEGQGFVSEDEYL 180

Qy        187 EIQGITREQSGDYECSASNDVAAPVVRRVKVTVNYPPYISEAKGTGVPVGQKGTLQCEAS 246
              ||  | |:|||:||||| |||||| ||:||:||||||||||:|| ||| ||||| | ||||
Db        181 EISDIKRDQSGEYECSALNDVAAPDVRKVKITVNYPPYISKAKNTGVSVGQKGILSCEAS 240

Qy        247 AVPSAEFQWYKDDKRLIEGKKGVKVENRPFLSKLIFFNVSEHDYGNYTCVASNKLGHTNA 306
              ||| |||||:|:| ||  | .||::||:  :| | |||||| |||||||||:||||:|||
Db        241 AVPMAEFQWFKEDTRLATGLDGVRIENKGRISTLTFFNVSEKDYGNYTCVATNKLGNTNA 300

Qy        307 SIMLFGPGAVSEVSNGTSRRAGCVWLLPLLVLHLLLKF 344
              || |:||||| :  |/ ||   |:||      |  :||
Db        301 SITLYGPGAVIDGVNSASRALACLWLSGTFFAHFFIKF 338
```

RESULT 3
~~JC4025~~
opioid-binding cell adhesion protein - human
C;Species: Homo sapiens (man)
C;Date: 13-Jun-1995 #sequence_revision 14-Jul-1995 #text_change 09-Jul-2004
C;Accession: JC4025
R;Shark, K.B.; Lee, N.M.
Gene 155, 213-317, 1995
A;Title: Cloning, sequencing and localization to chromosome 11 of a cDNA encoding a human opioid-binding ce
A;Reference number: JC4025; MUID:95237612; PMID:7721093
A;Accession: JC4025
A;Molecule type: mRNA
A;Residues: 1-345 <SHA>
A;Cross-references: UNIPROT:Q14982; UNIPARC:UPI0000055AE0; GB:L34774; NID:g514373; PIDN:AAA36387.1; PID:g51
A;Experimental source: brain
C;Comment: This protein binds opioid alkaloids in the presence of acidic lipids, exhibiting selectivity for
C;Genetics:
A;Gene: GDB:OPCML; OBCAM; OPCM
A;Cross-references: GDB:251677; OMIM:600632
A;Map position: 11pter-11qter
C;Superfamily: carcinoembryonic antigen; carcinoembryonic antigen precursor amino-terminal homology; immunc

```
  Query Match             70.2%;  Score 1268;  DB 2;  Length 345;
  Best Local Similarity   71.2%;  Pred. No. 3.4e-86;
  Matches  240;  Conservative   37;  Mismatches   56;  Indels    4;  Gaps    2;

Qy         12 ISWAIFTGLAALCLF---QGVPVRSGDATFPKAMDNVTVRQGESATLRCTIDNRVTRVAW 68
              : |     ::   ||    |||||||||||||||||||||||||||||||:|||||||
Db          9 LPWKCLVVVSLRLLFLVPTGVPVRSGDATFPKAMDNVTVRQGESATLRCTIDDRVTRVAW 68

Qy         69 LNRSTILYAGNDKWCLDPRVVLLSNTQTQYSIEIQNVDVYDEGPYTCSVQTDNHPKTSRV 128
              ||||||||||||| :||||::| || ||||| |||||||||||||||||||||||||||
Db         69 LNRSTILYAGNDKWSIDPRVIILVNTPTQYSIMIQNVDVYDEGPYTCSVQTDNHPKTSRV 128

Qy        129 HLIVQVSPKIVEISSDISINEGNNISLTCIATGRPEPTVTWRHISPK-AVGFVSEDEYLE 187
              |||||| |:|: |||||::|||::::| |:| |||||||||:| |   ||||||||||
Db        129 HLIVQVPPQIMNISSDITVNEGSSVTLLCLAIGRPEPTVTWRHLSVKEGQGFVSEDEYLE 188

Qy        188 IQGITREQSGDYECSASNDVAAPVVRRVKVTVNYPPYISEAKGTGVPVGQKGTLQCEASA 247
              |  | |:|||:||||| |||||| ||:||:||||||||||:|| ||| ||||| | |||||
Db        189 ISDIKRDQSGEYECSALNDVAAPDVRKVKITVNYPPYISKAKNTGVSVGQKGILSCEASA 248

Qy        248 VPSAEFQWYKDDKRLIEGKKGVKVENRPFLSKLIFFNVSEHDYGNYTCVASNKLGHTNAS 307
              || |||||:|:: ||  |  |:::||:  :| | |||||| |||||||||:||||:||||
Db        249 VPMAEFQWFKEETRLATGLDGMRIENKGRMSTLTFFNVSEKDYGNYTCVATNKLGNTNAS 308

Qy        308 IMLFGPGAVSEVSNGTSRRAGCVWLLPLLVLHLLLKF 344
              | |:||||| :  |  ||   |:||   |: |  :||
Db        309 ITLYGPGAVIDGVNSASRALACLWLSGTLLAHFFIKF 345
```

<!--EndFragment-->

SEQ ID NO:4

Appendix B

```
RESULT 6
NTRI_RAT
ID   NTRI_RAT       STANDARD;      PRT;   344 AA.
AC   Q62718;
DT   01-NOV-1997, integrated into UniProtKB/Swiss-Prot.
DT   01-NOV-1996, sequence version 1.
DT   07-MAR-2006, entry version 43.
DE   Neurotrimin precursor (GP65).
GN   Name=Nt; Synonyms=Hnt;
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Sciurognathi;
OC   Muroidea; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   NUCLEOTIDE SEQUENCE [MRNA], AND PROTEIN SEQUENCE OF 217-229.
RC   STRAIN=Sprague-Dawley;
RX   MEDLINE=95198094; PubMed=7891157;
RA   Struyk A.F., Canoll P.D., Wolfgang M.J., Rosen C.L., D'Eustachio P.,
RA   Salzer J.L.;
RT   "Cloning of neurotrimin defines a new subfamily of differentially
RT   expressed neural cell adhesion molecules.";
RL   J. Neurosci. 15:2141-2156(1995).
CC   -!- FUNCTION: Neural cell adhesion molecule.
CC   -!- SUBCELLULAR LOCATION: Cell membrane; lipid-anchor; GPI-anchor.
CC   -!- TISSUE SPECIFICITY: Central nervous system.
CC   -!- DEVELOPMENTAL STAGE: Expressed at high levels in several
CC       developing projection systems: in neurons of the thalamus,
CC       subplate, and lower cortical laminae in the forebrain and in the
CC       pontine nucleus, cerebellar granule cells, and Purkinje cells in
CC       the hindbrain.
CC   -!- SIMILARITY: Belongs to the immunoglobulin superfamily. IgLON
CC       family.
CC   -!- SIMILARITY: Contains 3 Ig-like C2-type (immunoglobulin-like)
CC       domains.
CC   ---------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ---------------------------------------------------------------------
DR   EMBL; U16845; AAA67445.1; -; mRNA.
DR   PIR; I56551; I56551.
DR   Ensembl; ENSRNOG00000023720; Rattus norvegicus.
DR   RGD; 620958; Hnt.
DR   InterPro; IPR013098; I-set.
DR   InterPro; IPR003599; Ig.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003598; Ig_c2.
DR   InterPro; IPR013151; Immunoglobulin.
DR   Pfam; PF07679; I-set; 1.
DR   Pfam; PF00047; ig; 2.
DR   SMART; SM00409; IG; 3.
DR   SMART; SM00408; IGc2; 2.
DR   PROSITE; PS50835; IG_LIKE; 3.
```

Appendix B (cont'd)

```
KW   Cell adhesion; Direct protein sequencing; Glycoprotein; GPI-anchor;
KW   Immunoglobulin domain; Lipoprotein; Membrane; Repeat; Signal.
FT   SIGNAL        1     33       Potential.
FT   CHAIN        34    321       Neurotrimin.
FT                                 /FTId=PRO_0000015114.
FT   PROPEP      322    344       Removed in mature form (Potential).
FT                                 /FTId=PRO_0000015115.
FT   DOMAIN       39    126       Ig-like C2-type 1.
FT   DOMAIN      136    218       Ig-like C2-type 2.
FT   DOMAIN      222    309       Ig-like C2-type 3.
FT   LIPID       321    321       GPI-anchor amidated asparagine
FT                                 (Potential).
FT   CARBOHYD     44     44       N-linked (GlcNAc. . .) (Potential).
FT   CARBOHYD     70     70       N-linked (GlcNAc. . .) (Potential).
FT   CARBOHYD    152    152       N-linked (GlcNAc. . .) (Potential).
FT   CARBOHYD    216    216       N-linked (GlcNAc. . .) (Potential).
FT   CARBOHYD    284    284       N-linked (GlcNAc. . .) (Potential).
FT   CARBOHYD    292    292       N-linked (GlcNAc. . .) (Potential).
FT   CARBOHYD    305    305       N-linked (GlcNAc. . .) (Potential).
FT   CARBOHYD    321    321       N-linked (GlcNAc. . .) (Potential).
FT   DISULFID     57    115       Potential.
FT   DISULFID    157    201       Potential.
FT   DISULFID    243    295       Potential.
SQ   SEQUENCE   344 AA;  37998 MW;  CBB39BE53B33B224 CRC64;

  Query Match             98.4%;  Score 1616;  DB 1;  Length 344;
  Best Local Similarity   97.4%;  Pred. No. 5.6e-127;
  Matches  305;  Conservative    6;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 RSGDATFPKAMDNVTVRQGESATLRCTIDNRVTRVAWLNRSTILYAGNDKWCLDPRVVLL 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         32 RSGDATFPKAMDNVTVRQGESATLRCTIDNRVTRVAWLNRSTILYAGNDKWCLDPRVVLL 91

Qy         61 SNTQTQYSIEIQNVDVYDEGPYTCSVQTDNHPKTSRVHLIVQVSPKIVEISSDISINEGN 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         92 SNTQTQYSIEIQNVDVYDEGPYTCSVQTDNHPKTSRVHLIVQVSPKIVEISSDISINEGN 151

Qy        121 NISLTCIATGRPEPTVTWRHISPKAVGFVSEDEYLEIQGITREQSGDYECSASNDVAAPV 180
              ||||||||||||||||||||||||||||||||||||||||||:||||||||||||||
Db        152 NISLTCIATGRPEPTVTWRHISPKAVGFVSEDEYLEIQGITREQSGEYECSASNDVAAPV 211

Qy        181 VRRVKVTVNYPPYISEAKGTGVPVGQKGTLQCEASAVPSAEFQWYKDDKRLIEGKKGVKV 240
              ||||  ||||||||||||||||||||||||||||||||||:||||||:||||||||
Db        212 VRRVNVTVNYPPYISEAKGTGVPVGQKGTLQCEASAVPSAEFQWFKDDKRLVEGKKGVKV 271

Qy        241 ENRPFLSKLIFFNVSEHDYGNYTCVASNKLGHTNASIMLFGPGAVSEVSNGTSRRAGCVW 300
              |||||||:| ||||||||||||||||||||||||||||||||:||||||||||:|
Db        272 ENRPFLSRLTFFNVSEHDYGNYTCVASNKLGHTNASIMLFGPGAVSEVNNGTSRRAGCIW 331

Qy        301 LLPLLVLHLLLKF 313

                                                 ||||||||||||

Db        332 LLPLLVLHLLLKF 344
```

Appendix B
(cont 3)

GenCore version 5.1.8
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OM protein - protein search, using sw model

Run on: May 24, 2006, 12:54:00 ; Search time 183.893 Seconds
(without alignments)
1574.444 Million cell updates/sec

Title: US-10-657-103-4
Perfect score: 1642
Sequence: 1 RSGDATFPKAMDNVTVRQGE.....RRAGCVWLLPLLVLHLLLKF 313

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 2849598 seqs, 925015592 residues

Total number of hits satisfying chosen parameters: 2849598

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : UniProt_7.2:*
1: uniprot_sprot:*
2: uniprot_trembl:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1642	100.0	344	1	NTRI_HUMAN	Q9p121 homo sapien
2	1636	99.6	344	2	Q5R554_PONPY	Q5r554 pongo pygma
3	1624	98.9	344	1	NTRI_MOUSE	Q99pj0 mus musculu
4	1624	98.9	344	2	Q8BG33_MOUSE	Q8bg33 m adult mal
5	1618	98.5	344	2	Q3TYC2_MOUSE	Q3tyc2 mus musculu
6	1616	98.4	344	1	NTRI_RAT	Q62718 rattus norv
7	1612.5	98.2	345	2	Q58DA5_BOVIN	Q58da5 bos taurus
8	1401	85.3	344	2	O93242_CHICK	O93242 gallus gall
9	1380.5	84.1	353	1	CEPU1_CHICK	Q90773 gallus gall
10	1331	81.1	313	2	O57596_CHICK	O57596 gallus gall
11	1331	81.1	315	2	Q9DGI5_CHICK	Q9dgi5 gallus gall
12	1256	76.5	337	2	Q6DFY2_MOUSE	Q6dfy2 mus musculu
13	1251.5	76.2	336	2	Q5ISA8_9PRIM	Q5isa8 saimiri bol

Appendix B (cont.4)

14	1250	76.1	337	1	OBCAM_CHICK	Q98892	gallus gall
15	1250	76.1	344	2	Q9DF61_CHICK	Q9df61	gallus gall
16	1248	76.0	337	2	Q3TYL3_MOUSE	Q3tyl3	mus musculu
17	1247.5	76.0	345	2	Q6GM08_XENLA	Q6gm08	xenopus lae
18	1247	75.9	344	2	Q6B0I4_HUMAN	Q6b0i4	homo sapien
19	1244.5	75.8	338	2	Q7Z3W6_HUMAN	Q7z3w6	homo sapien
20	1244.5	75.8	338	2	Q5R7T4_PONPY	Q5r7t4	pongo pygma
21	1244.5	75.8	345	1	OPCM_HUMAN	Q14982	homo sapien
22	1244.5	75.8	345	1	OPCM_PANTR	Q5is61	pan troglod
23	1243.5	75.7	345	1	OPCM_BOVIN	P11834	bos taurus
24	1235.5	75.2	345	1	OPCM_RAT	P32736	rattus norv
25	1230.5	74.9	319	2	Q5ISM6_MACFA	Q5ism6	macaca fasc
26	981	59.7	231	2	Q3USC2_MOUSE	Q3usc2	m 10 days n
27	970	59.1	342	2	Q642G9_BRARE	Q642g9	brachydanio
28	913	55.6	334	2	O02870_CHICK	O02870	gallus gall
29	913	55.6	338	1	LSAMP_CHICK	Q98919	gallus gall
30	906	55.2	338	1	LSAMP_HUMAN	Q13449	homo sapien
31	905	55.1	350	2	O02869_CHICK	O02869	gallus gall
32	901	54.9	338	1	LSAMP_RAT	Q62813	rattus norv
33	901	54.9	338	2	Q3TYE5_MOUSE	Q3tye5	mus musculu
34	887.5	54.0	361	2	Q5M960_RAT	Q5m960	rattus norv
35	878.5	53.5	337	2	Q6GLZ7_XENLA	Q6glz7	xenopus lae
36	868.5	52.9	341	1	LSAMP_MOUSE	Q8b1k3	mus musculu
37	856	52.1	341	2	Q503N3_BRARE	Q503n3	brachydanio
38	833	50.7	352	1	NEGR1_CHICK	Q9w6v2	gallus gall
39	824	50.2	375	2	Q2WF53_BRARE	Q2wf53	brachydanio
40	815	49.6	354	1	NEGR1_PONPY	Q5r412	pongo pygma
41	814	49.6	354	1	NEGR1_HUMAN	Q7z3b1	homo sapien
42	812	49.5	348	1	NEGR1_RAT	Q9z0j8	rattus norv
43	811	49.4	348	1	NEGR1_MOUSE	Q80z24	mus musculu
44	761	46.3	287	2	Q4SL89_TETNG	Q4sl89	tetraodon n
45	757	46.1	325	2	Q8HW98_MOUSE	Q8hw98	mus musculu